Claims

1. A nucleic acid molecule encoding the human dystrophin-related polypeptide Drop1 or a polypeptide exhibiting a biological property of Drop1, which is:
   (a) a nucleic acid molecule encoding a Drop1 polypeptide that consists of the amino acid sequence as depicted in Figure 10;
   (b) a nucleic acid molecule consisting of the nucleotide sequence as depicted in Figure 6B;
   (c) a nucleic acid molecule the sequence of which differs from the sequence of a nucleic acid molecule of (a) or (b) due to the degeneracy of the genetic code;
   (d) a nucleic acid molecule complementary to the nucleic acid molecule specified in (a) to (c).

2. A recombinant vector containing the nucleic acid molecule of claim 1.

3. The recombinant vector of claim 2 wherein the nucleic acid molecule is operatively linked to regulatory elements allowing transcription and synthesis of a translatable RNA in prokaryotic and/or eukaryotic host cells.

4. A recombinant host cell which contains the recombinant vector of claim 2 or 3.

5. The recombinant host cell of claim 4, which is a mammalian cell, a bacterial cell, an insect cell or a yeast cell.

6. A non-human transgenic animal characterized by loss of Drop-1 function.

7. The transgenic non-human animal of claim 6 further comprising at least one inactivated wild type allele of the corresponding Drop1 encoding gene.

8. A polypeptide exhibiting a biological property of the human dystrophin-related polypeptide Drop1 or the related polypeptide which is encoded by a nucleic acid molecule of claim 1.

9. A method of making a polypeptide exhibiting a biological property of the human dystrophin-related polypeptide Drop1 comprising:

(a) culturing the recombinant host cell of claim 4 or 5 under conditions such that said polypeptide is expressed; and

(b) recovering said polypeptide.

10. A polypeptide produced by the method of claim 9.

11. An antibody that binds specifically to the polypeptide of claim 8 or 10.

12. The nucleic acid molecule of claim 1, the polypeptide of claim 8 or 10, or the antibody of claim 11 which is detectably labeled.

13. The nucleic acid molecule, the polypeptide or the antibody of claim 12, wherein the label is a radioisotope, a bioluminescent compound, a chemiluminescent compound, a fluorescent compound, a metal chelate, or an enzyme.

14. A method for identifying activators/agonists of the human dystrophin-related polypeptide Drop1 comprising the steps of:

(a) incubating a candidate compound with a polypeptide of claim 8 or 10;

(b) assaying a biological activity; and

(c) determining if a biological activity of said polypeptide has been altered.

15. A pharmaceutical composition comprising:

(A) a nucleic acid molecule comprising

(a) a nucleic acid molecule encoding a Drop1 polypeptide that comprises the amino acid sequence as depicted in Figure 10;

(b) a nucleic acid molecule comprising the nucleotide sequence as depicted in Figure 6B;

(c) a nucleic acid molecule encoding a polypeptide the amino acid sequence of which shows at least 65% idendity to the amino acid sequence of the polypeptide encoded by a nucleic acid molecule specified in (a) or (b);

(d) a nucleic acid molecule the sequence of which differs from the sequence of a nucleic acid molecule of (a) to (c) due to the degeneracy of the genetic code;

(e) a nucleic acid molecule, which represents a fragment of a nucleic acid molecule specified in (a) to (d); or

(f) a nucleic acid molecule complementary to the nucleic acid molecule specified in (a) to (e),

(B) a polypeptide exhibiting a biological property of the human dystrophin-related polypeptide Drop1 or the related polypeptide which is encoded by a nucleic acid molecule of (A) above;

(C) a recombinant vector containing the nucleic acid molecule of (A) above; or

(D) an antibody that binds specifically to the polypeptide as defined under (B) above,

and

optionally a pharmaceutically acceptable excipient, diluent or carrier.

16. Use of a nucleic acid molecule as defined in claim 15, polypeptide as defined in claim 15, a recombinant vector as defined in claim 15, an antibody as defined in claim 15 or an activator/agonist obtainable by the method of claim 14 for the preparation of a medicament for treatment of a tumor.

17. A diagnostic kit or array useful for the detection and/or characterization of a tumor or a predisposition to such a tumor, containing a nucleic acid molecule as defined in claim 15, a polypeptide as defined in claim 15 or an antibody as defined in claim 15.

18. Use of a nucleic acid molecule as defined in claim 15, a polypeptide as defined in claim 15 or an antibody as defined in claim 15 for the preparation of a diagnostic composition for diagnosing and/or characterizing a tumor or a predisposition to such a tumor.

19. Use according to claim 16 or 18, wherein the tumor is an ovarian, mammary, stomach, kidney, thyroid, cervical, pancreas, testis or lung carcinoma.

20. Use of an vector as defined in claim 15 for gene therapy.